



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,690	01/22/2004	Leonid Kazakevich	I-2-0284.2US	8668
24374 7590 02/26/2009 VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			EXAMINER CHAN, RICHARD	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 02/26/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/769,690	<b>Applicant(s)</b> KAZAKEVICH ET AL.	
	<b>Examiner</b> RICHARD CHAN	<b>Art Unit</b> 2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-22 is/are rejected.
- 7) ☒ Claim(s) 8 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chulajata (US 6,434,375).

Regarding claim 1, Chulajata discloses the apparatus Fig.1 for processing a communication received by at least two (2) antenna assemblies 101a and 101M, said communication being comprised of sequentially transmitted slots of equal length (Col.5 line 19-26), said apparatus comprising: a channel estimator (Col.6 line 8-17); first and second units coupled to the channel estimator for determining signal quality based on at least one of history, recent channel estimation and optimization.

Regarding claim 2, Chulajata discloses the apparatus of claim 1 wherein signal quality outputs of said first and second units are combined in a combining means 127.

Regarding claim 3, Chulajata discloses the apparatus of claim 2 wherein the output of said combining means 129 provides a signal quality output 131. (Col.9 line 41-46)

Regarding claim 9, Chulajata discloses the apparatus of claim 1 comprising: means for selectively coupling the communications received by each antenna assembly 101a and 101M to said channel estimator. (Col.6 line 8-17)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4-7 and 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chulajata (US 6,434,375) in view of Linder (US 4,977,616).

Regarding claim 4, Chulajata discloses the apparatus of claim 1 however Chulajata does not further disclose the apparatus comprising: switching means responsive to the signal quality for selectively coupling slots from said antenna assemblies to a common input of said channel estimator wherein the slots from each antenna assembly are coupled to said common input in a uniform sequence responsive to a first quality output.

The Linder reference however discloses an antenna selection circuit which determines the selection of the antenna based on antenna signal quality such as RSSI level of a particular antenna channel during the monitored time slots, based on the detected level monitored by the

Art Unit: 2618

system, the switch control is than able to compare with other antenna performances to allow a selection to be made. (Abstract)

It would have been obvious to one of ordinary skill in the art to implement an antenna switch as disclosed by Linder with the apparatus for processing a communication control by at least two antenna assemblies as disclosed by Chulajata in order to select the best signal path through particular antenna channel for the system.

Regarding claim 5, Chulajata and Linder combined disclose the apparatus of claim 4, Linder continues to disclose wherein said switching means couples outputs of the antenna assemblies to said common unit in a non-uniform sequence responsive to a second quality output different from said first quality output. (Col.3 line 42-55)

Regarding claim 6, Chulajata and Linder combined disclose the apparatus of claim 4 wherein there are two antenna assemblies and switching in said uniform sequence comprises: switching the slots from said two antenna assemblies in an alternating fashion. (Col.2 line 57-63)

Regarding claim 7, Chulajata and Linder combined disclose the apparatus of claim 4 wherein there are two antenna assemblies and switching in said uniform sequence comprises: switching pairs of slots from said two antenna assemblies in an alternating fashion. (Col.2 line 57-63)

Art Unit: 2618

Regarding claim 10, Chulajata discloses the apparatus for processing a communication received by at least two antenna assemblies 101a and 101M said communication being comprised of sequentially transmitted slots of equal length (Col.5 line 19-26), said apparatus comprising: a channel estimator (Col.6 line 8-17);

However Chulajata does not specifically disclose the switch means for selectively coupling signals from said antenna assemblies to an input of said channel estimator; and said channel estimator providing a signal quality output.

The Linder reference however discloses an antenna selection circuit which determines the selection of the antenna based on antenna signal quality such as RSSI level of a particular antenna channel during the monitored time slots, based on the detected level monitored by the system, the switch control is than able to compare with other antenna performances to allow a selection to be made. (Abstract)

It would have been obvious to one of ordinary skill in the art to implement an antenna switch as disclosed by Linder with the apparatus for processing a communication control by at least two antenna assemblies as disclosed by Chulajata in order to select the best signal path through particular antenna channel for the system.

Regarding claim 11, Chulajata and Linder combined disclose the apparatus of claim 10, Linder continues to disclose wherein said switch means alters a switching pattern responsive to a signal quality coupled thereto. (Col.9 line 41-46)

Regarding claim 12, Chulajata and Linder combined disclose the apparatus of claim 11, however Linder continues to disclose wherein two (2) antenna assemblies 101a and 101M are provided and said switch means couples slots from said two antenna assemblies in an alternating fashion responsive to a first signal quality. (Col.2 line 14-26n)

Regarding claim 13, Chulajata and Linder combined disclose the apparatus of claim 11, however Linder continues to disclose wherein two (2) antenna assemblies are provided and said switch means couples slots from said two antenna assemblies 101a and 101M in a non-alternating fashion responsive to a first signal quality. (Col.2 line 14-26n)

Regarding claim 14, Chulajata discloses the apparatus for processing a communication received by at least two (2) antenna assemblies 101a and 101M, said communication being comprised of sequentially transmitted slots of equal length, (Col.5 line 19-26), said apparatus comprising: a channel estimator (Col.6 line 8-17);

However the Chulajata reference does not specifically disclose the means for selectively coupling slots from said antenna assemblies to a common input of said channel estimator in a given pattern; first and second units coupled to said channel estimator for determining signal quality based on at least one of history, recent channel estimation and optimization.

The Linder reference however discloses an antenna selection circuit which determines the selection of the antenna based on antenna signal quality such as RSSI level of a particular antenna channel during the monitored time slots, based on the detected level monitored by the

Art Unit: 2618

system, the switch control is than able to compare with other antenna performances to allow a selection to be made. (Abstract)

It would have been obvious to one of ordinary skill in the art to implement an antenna switch as disclosed by Linder with the apparatus for processing a communication control by at least two antenna assemblies as disclosed by Chulajata in order to select the best signal path through particular antenna channel for the system.

Regarding claim 15, Chulajata and Linder combined disclose the apparatus of claim 14, Linder continues to disclose wherein said switching means alters said given pattern responsive to a signal quality value. (Col.9 line 41-46)

Regarding claim 16, Chulajata discloses the method for selectively coupling a communication received by at least two (2) antenna assemblies 101a and 101M to a channel estimator (Col.6 line 8-17); said communication being comprised of sequentially transmitted slots of equal length,(Col.5 line 19-26), comprising: said channel estimator (Col.6 line 8-17);

However Chulajata does not specifically disclose estimating channel response; and a switch: controlling the switching of the communication of said two (2) antenna assemblies responsive to said channel response.

The Linder reference however discloses an antenna selection circuit which determines the selection of the antenna based on antenna signal quality such as RSSI level of a particular antenna channel during the monitored time slots, based on the detected level monitored by the



Art Unit: 2618

system, the switch control is than able to compare with other antenna performances to allow a selection to be made. (Abstract)

It would have been obvious to one of ordinary skill in the art to implement an antenna switch as disclosed by Linder with the apparatus for processing a communication control by at least two antenna assemblies as disclosed by Chuljataa in order to select the best signal path through particular antenna channel for the system.

Regarding claim 17, Chulajata and Linder combined disclose the method of claim 16, Linder continues to disclose wherein first and second combining means 129 generate first and second quality outputs responsive to said channel response and at least one of history, recent channel estimation and optimization; and combine said quality outputs. (Col.9 line 41-54)

Regarding claim 18, Chulajata and Linder combined disclose the method of claim 17 wherein the combined output provides a signal quality output. (Col.9 line 41-54)

Regarding claim 19, Chulajata and Linder combined disclose the method of claim 16, Linder continues to disclose the method further comprising: said switch: selectively coupling slots from said antenna assemblies to said channel estimator in a uniform sequence responsive to a first quality output. (Col.2 line 57-63)

Regarding claim 20, Chulajata and Linder combined disclose the method of claim 19 Linder continues to disclose wherein said switch: selectively couples outputs of the two antenna

Art Unit: 2618

assemblies in a non-uniform sequence responsive to a second quality output different from said first quality output. (Col.9 line 41-46)

Regarding claim 21, Chulajata and Linder combined disclose the method of claim 19, Chulajata discloses wherein there are two (2) antenna assemblies 101a and 101M and, and Linder discloses the switching in said uniform sequence comprises: switching the slots from said two (2) antenna assemblies in an alternating fashion. (Abstract)

Regarding claim 22, Chulajata discloses the method of claim 19 wherein there are two (2) antenna assemblies and switching in said uniform sequence comprises: switching pairs of slots from said two (2) antenna assemblies in an alternating fashion. (Col.2 line 14-26n)

***Allowable Subject Matter***

5. Claims 8 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 8, search of the prior art does not specifically disclose the apparatus of claim 5 wherein there are two (2) antenna assemblies and switching in said non-uniform sequence comprises: forwarding at least two consecutive slots of one of said two antenna

Art Unit: 2618

assemblies to said common input before forwarding a single slot from the other of said two antenna assemblies.

Regarding claim 23, Chulajata and Linder combined discloses the method of claim 16 wherein there are two (2) antenna assemblies 101a and 101M, however Linder continues to disclose switching in said non-uniform sequence comprises: forwarding at least two consecutive slots of one of said two (2) antenna assemblies to said common input before forwarding a single slot from the other of said two (2) antenna assemblies.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD CHAN whose telephone number is (571)272-0570. The examiner can normally be reached on Mon - Fri (9AM - 5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571)272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Richard Chan/  
Examiner, Art Unit 2618

/Nay A. Maung/  
Supervisory Patent Examiner, Art Unit  
2618